

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 September 2005 (29.09.2005)

PCT

(10) International Publication Number
WO 2005/090235 A2

(51) International Patent Classification⁷: **C01G 23/00**

(21) International Application Number:
PCT/EP2005/003050

(22) International Filing Date: 22 March 2005 (22.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2004108580 24 March 2004 (24.03.2004) RU

(71) Applicant (for all designated States except US): **BRETON SPA** [IT/IT]; Via Garibaldi, 27, I-31030 Castello di Godego (Treviso) (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GORDIENKO,**

Pavel, S. [RU/RU]; Ulica Magnitogorskaya, 22 Kv. 15, Vladivostok 690068 (RU). **SINKOV, Gennadi, V.** [RU/RU]; Novokurkinskoe shosse -D-25,, Kor 2, Kv.55, 125466 Moscow (RU).

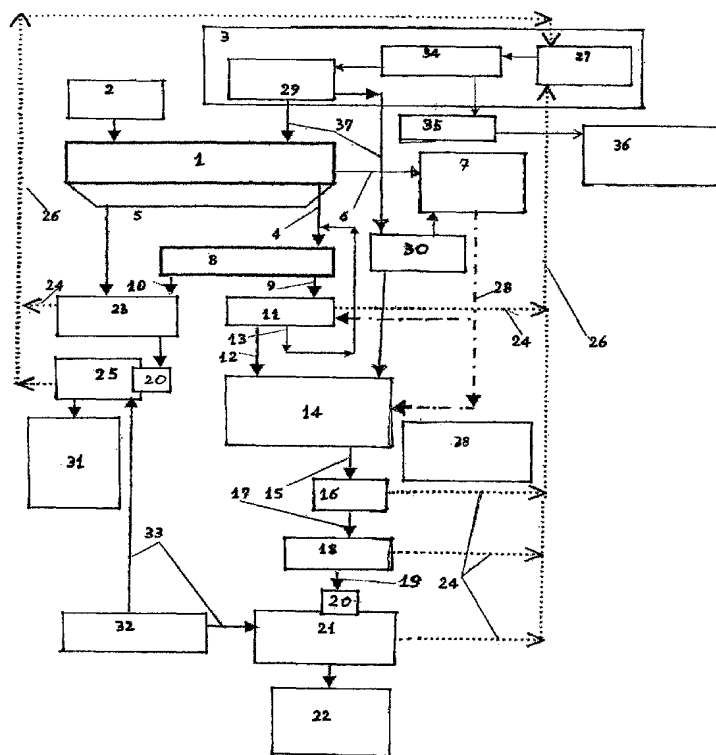
(74) Agents: **PISTOLESI, Roberto** et al.; Dragotti & Associati Srl, Vicolo Campana, 3, I-31100 Treviso (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: PROCESS FOR THE PRODUCTION OF TITANIUM DIOXIDE



Schematic diagram of the facility

(57) Abstract: It is disclosed a process for the production of titanium dioxide comprising the following steps: (a) a titanium ore containing iron, preferably ilmenite, is reacted with an aqueous NH_4F solution; (b) the aqueous suspension thus obtained is filtered with consequent separation of a sludge fraction, which contains ammonium fluoroferrates, and a filtrate fraction, which contains ammonium fluorotitanates; (c) the filtrate fraction thus obtained is subjected to an hydrolysis reaction; (d) the thus-obtained solid component is subjected to a thermal hydrolysis reaction. The plant and the reactors for performing the above process are also disclosed.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,

ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- of inventorship (Rule 4.17(iv)) for US only

Published:

- without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.